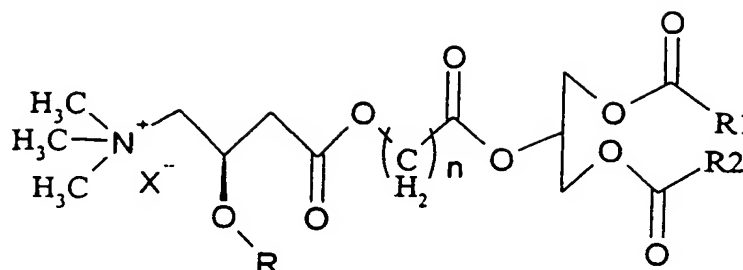


**CLAIMS****1. Compounds of formula (I)****(I)**

where:

n is an integer from 1 to 3;

R is hydrogen or alkanoyl, straight or branched, with 2-6 carbon atoms;

R<sub>1</sub> and R<sub>2</sub>, which may be the same or different, represent a saturated or unsaturated straight acyl chain, with 3-20 carbon atoms; and

X<sup>-</sup> is the anion of a pharmacologically acceptable acid.

**2.** Compound according to claim 1, in which R is selected from the group consisting of acetyl, propionyl, butyryl, valeryl and isovaleryl.

**3.** Compound according to claim 1 in which R<sub>1</sub> and R<sub>2</sub> are selected from the group consisting of hexanoyl, undecanoyl, myristoyl, palmitoyl or oleoyl.

4. Compound according to claim 1, in which  $X^-$  is selected from the group consisting of chloride; bromide; iodide; aspartate; acid aspartate; citrate; acid citrate; tartrate; acid tartrate; phosphate; acid phosphate; fumarate; acid fumarate; glycerophosphate; glucose phosphate; lactate; maleate; acid maleate; mucate; orotate; oxalate; acid oxalate; sulphate; acid sulphate; trichloroacetate; trifluoroacetate; methane sulphonate; pamoate and acid pamoate.

5. Compound according to claim 1, selected from the group consisting of:

- ester of L-carnitine bromide with 2-hydroxyacetyl-1,3-dipalmitoyl glycerol;
- ester of acetyl L-carnitine bromide with 2-hydroxyacetyl-1,3-dipalmitoyl glycerol;
- ester of propionyl L-carnitine bromide with 2-hydroxyacetyl-1,3-dipalmitoyl glycerol;
- ester of isobutyryl L-carnitine bromide with 2-hydroxyacetyl-1,3 dipalmitoyl glycerol;
- ester of isovaleryl L-carnitine bromide with 2-hydroxyacetyl-1,3-dipalmitoyl glycerol;
- ester of L-carnitine bromide with 1,3-dihexanoyl-2-hydroxycetyl glycerol;

- ester of acetyl L-carnitine bromide with 1,3-dihexanoyl-2-hydroxyacetyl glycerol;
- ester of propionyl L-carnitine bromide with 1,3-dihexnoyl-2-hydroxyacetyl glycerol.

5   **6.** Use of a compound according to any of claims 1-5 for the preparation of liposomes.

**7.** Liposome comprising a compound of anyone of claims 1-5.

**8.** Liposome according to claim 7, further containing helper lipids.

10   **9.** Liposome according to claim 8, in which said helper lipid is selected from the group consisting of cholesterol, 1-palmitoyl-2-oleoyl phosphatidyl choline or dioleoyl phosphatidyl choline.

**10.** Use of a liposome according to any one of claims 7-9, for the preparation of a composition useful for the transport of pharmacologically active compounds.

15   **11.** Use according to claim 10, in which the pharmacologically active compound is a naturally occurring or modified plasmid or polynucleotide.

**12.** Use according to claim 11, in which the plasmid or polynucleotide is useful in gene therapy.

20   **13.** Use according to claim 11, in which the plasmid or polynucleotide codes for a peptide or protein useful as a vaccine.

14. Use according to claim 10, in which the active compound is a drug.

15. Use according to claim 14, in which said drug is selected from the group consisting of anticancer, antiangiogenic, antiviral, antibacterial, antifungal, antipprotozoan agents, compounds active  
5 on the cardiovascular system, or immunogenic peptides.

16. Use according to claim 15, in which said drug is an anticancer or antiangiogenic agent.

17. Use according to claim 16, in which said anticancer agent is  
10 selected from the group consisting of taxol or a camptothecin derivative.

18. Use according to claim 17, in which said derivative of camptothecin is selected from the group consisting of

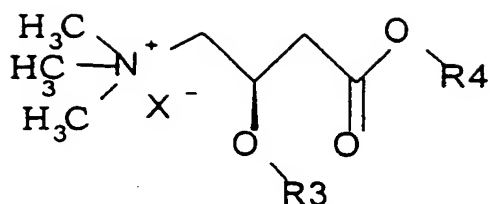
- 7-carbonitrilecamptothecin;
- 15 - 7-benzyloxyiminomethylcamptothecin, and
- 7-butoxyiminomethylcamptothecin.

19. Use of a liposome according to claims 7-9 for the preparation of a cosmetic composition.

20. Pharmaceutical composition comprising a liposome according to claims 7, 8, or 9.

21. Composition according to claim 20, in which said liposome contains a pharmacologically active compound.

- 22.** Composition according to claim 21, in which the active compound is a naturally occurring or modified plasmid or polynucleotide
- 23.** Composition according to claim 22, in which the plasmid or  
5 polynucleotide is useful in gene therapy.
- 24.** Composition according to claim 22, in which the plasmid or polynucleotide codes for a peptide or protein useful as a vaccine
- 25.** Cosmetic composition comprising a liposome according to any one of claims 7-9.
- 10 **26.** Composition according to claim 25, in which said liposome contains a substance with cosmetic activity.
- 27.** Composition according to claim 21, in which said compound is selected from the group consisting of anticancer, antiangiogenic, antiviral, antibacterial, antifungal, antiprotozoan agents,  
15 compounds active on the cardiovascular system, or immunogenic peptides.
- 28.** Composition according to claims 20-27, which can be administered orally, parenterally, intravenously, intramuscularly, subcutaneously, transdermally, or in the form of a nasal or  
20 mouth spray.
- 29.** Use of the liposome comprising a compound of formula (II)



where:

R<sub>3</sub> is a saturated or unsaturated, straight or branched acyl chain, with 4-26 carbon atoms;

R<sub>4</sub> is a saturated or unsaturated, straight or branched alkyl chain, with 4-26 carbon atoms; and

X<sup>-</sup> is the anion of a pharmacologically acceptable acid for the transport of drugs or of substances with cosmetic activity.

**30.** Use according to claim 29, in which R<sub>3</sub> is preferably selected from the group consisting of nonanoyl, dodecanoyl, myristoyl, palmitoyl, stearoyl or oleoyl.

**31.** Use according to claim 29, in which R<sub>4</sub> is preferably selected from the group consisting of nonyl, undecyl, tetradecyl, hexadecyl or oleyl.

**32.** Use according to claim 30, in which X<sup>-</sup> is selected from the group consisting of chloride; bromide; iodide; aspartate; acid aspartate; citrate; acid citrate; tartrate; acid tartrate; phosphate; acid phosphate; fumarate; acid fumarate; glycerophosphate;

glucose phosphate; lactate; maleate; acid maleate; mucate; orotate; oxalate; acid oxalate; sulphate; acid sulphate; trichloroacetate; trifluoroacetate; methane sulphonate; pamoate and acid pamoate.

5 **33.** Use according to claims 29-32, in which the compound is selected from the group consisting of :

- palmitoyl L-carnitine chloride undecyl ester;
- stearoyl L-carnitine chloride undecyl ester;
- stearoyl L-carnitine chloride tetradecyl ester;
- 10 - palmitoyl L-carnitine chloride tetradecyl ester;
- myristoyl L-carnitine chloride tetradecyl ester;
- palmitoyl L-carnitine bromide hexadecyl ester ;
- oleoyl L-carnitine chloride oleyl ester.

**34.** Use according to according to claim 29, in which the drug is  
15 selected from the group consisting of anticancer, antiangiogenic, antiviral, antibacterial, antifungal, antiprotozoan agents, compounds active on the cardiovascular system, or immunogenic peptides.

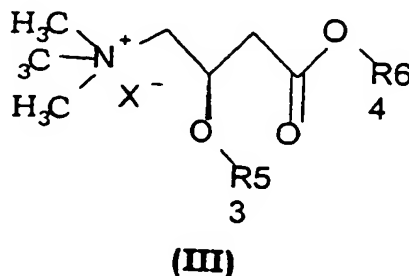
**35.** Use according to claim 34, in which said drug is an anticancer  
20 or antiangiogenic agent.

36. Use according to claim 35, in which said anticancer agent is selected from the group consisting of taxol or a derivative of camptothecin.
37. Use according to claim 36, in which said derivative of camptothecin is selected from the group consisting of
- 7-benzyloxyiminomethylcamptothecin or
  - 7-butoxyiminomethylcamptothecin.
38. Use according to claim 29, in which the liposome additionally contains helper lipids.
39. Use according to claim 38, in which said helper lipid is selected from the group consisting of cholesterol, 1-palmitoyl-2-oleoyl phosphatidyl choline or dioleoyl phosphatidyl choline.
40. Composition comprising a liposome according to claim 29, for the transport of drugs or of a substance with cosmetic activity.
41. Composition according to claim 40, in which the drug is selected from the group consisting of anticancer, antiangiogenic, antiviral, antibacterial, antifungal, antiprotozoan agents, compounds active on the cardiovascular system, or immunogenic peptides.
42. Composition according to claims 40-41, which can be administered orally, parenterally, intravenously, intramuscularly,



subcutaneously, transdermally, or in the form of a nasal or mouth spray.

43. Use of a liposome comprising a compound of formula (III):



where:

R<sub>5</sub> is a saturated or unsaturated, straight or branched acyl chain, with 4-26 carbon atoms;

R<sub>6</sub> is a saturated or unsaturated, straight or branched alkyl chain, with 4-26 carbon atoms; and

X<sup>-</sup> is the anion of a pharmacologically acceptable acid;

with the proviso that:

when R<sub>5</sub> is stearyl, R<sub>6</sub> is not stearyl,

when R<sub>5</sub> is oleoyl, R<sub>6</sub> is not stearyl,

when R<sub>5</sub> is palmitoyl, R<sub>6</sub> is not palmitoyl,

when R<sub>5</sub> is myristoyl, R<sub>6</sub> is not myristoyl,

when R<sub>5</sub> is lauroyl, R<sub>6</sub> is not lauryl,

when R<sub>5</sub> is oleoyl, R<sub>6</sub> is not oleyl

for the transport of a naturally occurring or modified plasmid or polynucleotide.

**44.** Use according to claim 43, in which  $R_5$  is preferably selected from the group consisting of nonanoyl, dodecanoyl, myristoyl, palmitoyl, stearoyl or oleoyl.

**45.** Use according to claim 43, in which  $R_6$  is preferably selected  
5 from the group consisting of nonyl, undecyl, tetradecyl, hexadecyl or oleyl.

**46.** Use according to claim 43, in which  $X^-$  is selected from the group consisting of chloride; bromide; iodide; aspartate; acid aspartate; citrate; acid citrate; tartrate; acid tartrate; phosphate; acid phosphate; fumarate; acid fumarate; glycerophosphate; glucose phosphate; lactate; maleate; acid maleate; mucate; orotate; oxalate; acid oxalate; sulphate; acid sulphate; trichloroacetate; trifluoroacetate; methane sulphonate; pamoate and acid pamoate.

**47.** Use according to claims 43-46, in which the compound is  
15 selected from the group consisting of:

- palmitoyl L-carnitine chloride undecyl ester;
- stearoyl L-carnitine chloride undecyl ester;
- stearoyl L-carnitine chloride tetradecyl ester;
- 20 - palmitoyl L-carnitine chloride tetradecyl ester.

**48.** Use according to claim 43, in which the plasmid or polynucleotide codes for a peptide or protein useful as a vaccine.

**49.** Use according to claim 43, in which the liposome additionally contains helper lipids.

**50.** Use according to claim 49, in which said helper lipid is selected from the group consisting of cholesterol, 1-palmitoyl-2-oleoyl phosphatidyl choline or dioleoyl phosphatidyl choline.

**51.** Composition comprising a liposome according to claim 43, for the transport of a naturally occurring or modified plasmid or polynucleotide.

**52.** Composition according to claim 51, in which the polynucleotide or plasmid codes for a peptide or protein useful as a vaccine.

**53.** Composition according to claims 51-52, which can be administered orally, parenterally, intravenously, intramuscularly, subcutaneously, transdermally, or in the form of nasal or mouth sprays.